



Docket No.: TER-99P3268

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MAIL STOP: APPEAL BRIEF-PATENTS

By: [Signature] Date: September 30, 2003

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

Applicant : Klaus Blinn et al.
Applic. No.: 10/036,254
Filed : October 22, 2001
Title : Apparatus for Compressing Objects and High-Pressure Press
Examiner : Shelley M. Self - Art Unit: 3725

BRIEF ON APPEAL

Hon. Commissioner for Patents,

S i r :

This is an appeal from the final rejection in the Office action dated March 28, 2003, finally rejecting claims 1-3 and 9-15.

Appellants submit this *Brief on Appeal* in triplicate, including payment in the amount of \$320.00 to cover the fee for filing the *Brief on Appeal*.

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Real Party in Interest:

This application is assigned to Siemens Aktiengesellschaft of München, Germany. The assignment will be submitted for recordation upon the termination of this appeal.

Related Appeals and Interferences:

No related appeals or interference proceedings are currently pending which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

Status of Claims:

Claims 1-3 and 9-15 are rejected and are under appeal. No claims were cancelled.

Status of Amendments:

No claims were amended after the final Office action. A *Response under 37 CFR § 1.116* was filed on June 30, 2003. The Primary Examiner stated in an *Advisory Action* dated July 11, 2003, that the request for reconsideration had been considered but did not place the application in condition for allowance.

Summary of the Invention:

As stated in the first paragraph on page 1 of the specification of the instant application, the invention

relates to an apparatus and a hydraulic high-pressure press for compressing objects, including a base plate, a frame and a ram head guided so as to be displaceable on the frame.

Appellants explained on page 9 of the specification, line 15, that, referring now to the figures of the drawings in detail and first, particularly, to Fig. 1 thereof, there is seen an apparatus 10 according to the invention which includes a base plate 11, a frame 12, a ram 13 and a ram head 14. A holder 15 which is also provided has an interior space 20 into which a cask 16 is inserted. The ram head 14 is guided so as to be displaceable in the direction of an arrow 18 relative to the frame 12. The ram 13 serves to move the ram head 14 and therefore the ram 13 contains suitable non-illustrated devices. When the cask 16 is being compressed, bulky objects contained in the cask 16 can apply forces to the ram head 14 in the peripheral direction. This is essentially due to the fact that the compressive force on the object to be compressed (e.g. a cask which can contain such objects) is initiated in a non-concentric manner by the bulky parts.

Appellants outlined on page 10 of the specification, line 5, that in a high-pressure press, in particular a hydraulic high-pressure press, compressive forces in the range of several thousand English, American or Metric tons, primarily

in the range of about 2000 tons, are applied to an object to be compressed. The result of this is that forces from one ton up to several hundred tons may arise in the peripheral direction. The ram head 14 is therefore mounted on the ram 13 in such a way as to be rotatable about its center axis 17 in the direction of an arrow 19. As a result, the ram head 14 is rotatable relative to the frame 12. Possible forces acting in the peripheral direction are thus considerably reduced, in particular in a hydraulic high-pressure press.

It is further outlined on page 10 of the specification, line 18, that Fig. 2 shows details of the connection between the ram 13 and the ram head 14. The ram head 14 has a centrally disposed bolt 21 which is provided with a threaded extension 22 for fastening to the ram head 14 in a rotationally locked manner. A disk 24 which is disposed on the other end of the bolt 21 is connected to the bolt 21 in such a way that it can rotate, but is axially fixed by a ring 25. A plurality of studs 28 which are distributed uniformly over the periphery are disposed on the disk 24. The studs 28 are supported in an encircling groove 30 of another disk 23. This disk 23 rests on the ram 13.

It is stated on page 11 of the specification, line 4, that, as soon as a force is produced in the peripheral direction of

the ram head 14 during the compression, the ram head 14 is rotated together with the bolt 21. The disk 24 and the studs 28 do not rotate in the ideal case. If a rotary movement of the disk 24 in the direction of the arrow 19 should occur contrary to expectation, the studs 28 are reliably guided by the encircling groove 30. Rotation of the ram head 14 about its center axis 17 in the direction of the arrow 19 is always possible. Wear of the ram 13 or of the ram head 14 is reliably avoided by the disks 23, 24 and the studs 28.

It is further stated on page 11 of the specification, line 15, that the studs 28 may be prestressed by Belleville or plate springs 29. This prestress acts upon the bolt 21 and is selected to be greater than the force due to the weight of the ram head 14. Fig. 2 shows that the ram head 14 is pressed from below against the ram 13 by the prestress due to the Belleville or plate springs 29. The ram head 14 is therefore always in an exactly defined position relative to the ram 13. Damage to the ram 13 or the ram head 14 during the compression is therefore ruled out.

It is described in the last paragraph on page 11 of the specification, line 25, that an extension 27 on the ram head 14 serves for centering between the ram 13 and the ram head 14. The extension 27 accommodates an edge 26 on the ram 13.

If need be, the extension 27 absorbs transverse forces occurring during the compression and thereby relieves the bolt 21. The force required for the compression is applied through a contact surface 32 between the ram 13 and the ram head 14. An intermediate space 31 is provided to the side of the extension 27, between the ram 13 and the ram head 14. This intermediate space 31 reduces the contact surface 32 between the ram 13 and the ram head 14. As a result, the area to be worked or processed is reduced, resulting in low manufacturing costs. The force required for rotating the ram head 14 in the direction of the arrow 19 is also reduced, so that only very small forces are introduced into the frame 12 in the peripheral direction.

Appellants outlined in the last paragraph of the specification, starting at line 16 on page 12, that, due to the rotatability of the ram head 14 relative to the frame 12, the forces introduced into the frame 12 are substantially reduced and are completely removed in the ideal case. The frame 12 can therefore be constructed for lower loads.

References Cited:

U.S. Patent No. 3,416,439 (Tezuka), dated December 17, 1968;
U.S. Patent No. 4,869,141 (Klingel), dated September 26, 1989.

Issues

1. Whether or not claims 1-3, 9, 10, 11, 12, 13, 14, and 15 are obvious over U.S. Patent No. 3,416,439 (Tezuka) in view of U.S. Patent No. 4,869,141 (Klingel) under 35 U.S.C. §103.
2. Whether or not the references U.S. Patent No. 3,416,439 (Tezuka) and (Klingel) under 35 U.S.C. §103 can be properly combined under 35 U.S.C. §103.

Grouping of Claims:

Claims 1, 11, and 15 are independent. Claims 2-10 depend on claim 1. Claims 12-14 depend on claim 11. The patentability of claims 2-10 and 12-14 are not separately argued. Therefore, claims 2-10 and 12-14 stand or fall with claim 1 and 11.

It is appreciatively noted from page 3 of the Office action dated March 28, 2003, that claims 4-8 would be allowable if rewritten in independent form to include the limitations of the base claim and any intervening claims. The claims have not been amended in the above-noted manner because they are believed to be allowable in their existing form.

Arguments:

1. Claims 1, 11, and 15 Are Not Obvious over Tezuka in View of Klingel.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claims 1, 11, and 15 call for, *inter alia*:

a ram head mounted to the ram and rotatable relative to the frame, the ram head having a centrally disposed bolt.

Appellants comment as follows with regard to the Examiner's comments on page 3, paragraph 1 of the Office action dated March 28, 2003, that "it would have been obvious to one having ordinary skill in the art at the time of the invention to replace Tezuka's securing/mounting/sustaining means with any securing/mounting/sustaining (i.e., bolt, screw, nail, clamp, etc.) means, the specific selection of a bolt is one of a mechanical expedient and requires only routine skill in the art."

It is respectfully noted that these comments by the Examiner are not correct. First it is noted that reference numeral (8) in Tezuka pertains to an axial hole or bushing and is not a securing means as stated by the Examiner.

Tezuka discloses a disk (11) which is connected to an upper part of the presser element (2) (ram head) and a shaft (13) is provided protrudingly at the center of the upper face of the disk (11). A gear (12) is disposed on the periphery of the disk (11). The shaft (13) is rotatably inserted in an axial hole (8) of a plate (7), and is connected in a rotateable manner with the supporting plate (7) by having a stop ring (14) secured to the upper end of the shaft (13). The removal of a pin allows the stop ring (14) to be removed.

Based on the disclosure of Tezuka, it is the shaft (13) that would have to be replaced with a centrally disposed bolt as indicated by the Examiner. However, a person of ordinary skill in the art would never replace the shaft (13) with a bolt as suggested by the Examiner. This will be made clear by the reasons set forth below.

It is noted that the construction of a press is not just an arbitrary assembly in which components can just be interchanged. The construction of a press is a well-planned

and carefully considered assembly of components, which takes into consideration the assembly of the press for the purposes of manufacturing and maintenance and safety during these operations. Such considerations are necessary due to the size of the components and the space that is available to access, handle, and maneuver components. The change of one component in the construction can lead to radical changes in other components and to the assembly process. Therefore, the construction and assembly of a press is a very important function or press building.

First, as can be seen in Fig. 1 of Tezuka, the removal of the stop ring (14) allows the presser element (2) to easily be lowered into the space above the casing (1) and removed out of the side of the press. However, the use of a bolt in this area would create several problems. First, due to the existing construction, there is no access to use a wrench to loosen or tighten a centrally disposed bolt (a centrally disposed ram as suggested by the Examiner would create even more of a problem in this regard). Moreover, when attaching the presser element (2), starting the thread would be very difficult as no locators can be supplied due to the fact that the presser element (2) must be allowed to rotate. This would lead to the possibility of damaging the threads, that would be necessarily provided in the presser element (2),

during the installation process. Accordingly, it can be seen that the use of the shaft (13) and the stop ring (14) has been carefully considered and selected by Tezuka to handle the construction and assembly function of the press.

Therefore, a person of ordinary skill in the art would not replace the shaft (13) with a centrally disposed bolt as suggested by the Examiner, as this would change the ease of assembly/disassembly and safety of assembly/disassembly, thereby destroying an intended function of the shaft (13) and the stop ring (14). Because the modification of the shaft (13) and stop ring (14) of Tezuka as suggested by the Examiner would destroy one of its intended functions, there can be no motivation to alter Tezuka as suggested by the Examiner.

Furthermore, as indicated above, Tezuka discloses that the presser element (2) is rotated with respect to the plate (7) about the shaft (13) disposed in the hole (8) (shown in the drawing as a bushing). A gear (12) and a pinion (16) are used to rotate the presser element. A person of ordinary skill in the art would not replace the shaft (13) with a bolt because a bolt is constructed to hold parts together under a tensile axial load. A bolt is not constructed to guide parts

on its diameter in a rotational manner, which is exactly what a bolt replacing the shaft (13) would be forced to do.

Furthermore, when connecting two parts with a bolt, two holes are needed, one hole is a threaded hole in the part to be bolted and the other hole is a clearance hole in the part that is being bolted to. It is common knowledge in toolmaking that because a generous positional tolerance is required for the fabrication of a threaded hole a large tolerance (clearance diameter) is needed for the clearance hole.

Therefore, a person of ordinary skill in the art would never use a bolt in place of the shaft (13) because, when two parts rotate in relationship to each other, it is desirable to have a small clearance so as to control wear of the hole (8). Because the use of a centrally located bolt in place of the shaft (13) would require a large clearance, a centrally located bolt cannot function in relation to the plate (7) as the shaft (13) does.

Moreover, a person of ordinary skill in the art also knows that in Tezuka, minimal clearance between the shaft (13) and the hole (8) is required, so that the gear (12) and the pinion (16) can mesh with each other without binding. Since a bolt would require a large clearance, replacing the shaft

(13) with a bolt, as suggested by the Examiner would jeopardize this function as well.

Finally, it can be seen in Fig. 1 of Tezuka, that when the presser element (2) is positioned in its rotatable state, a gap is provided between the plate (7) and the disk (11) this gap allows the gear (12) and the pinion (16) to rotate the presser element (2). If a centrally disposed bolt were used in place of the shaft (13), the bolt could not be drawn tight as it would not allow the presser element (2) to be turned; not drawing a bolt tight would increase the possibility or the presser element (2) loosening and falling off.

Based on the reasons provided above, a person of ordinary skill in the art would not replace the shaft (13) with a centrally disposed bolt as suggested by the Examiner. Such a modification would impair the locating of the pressure element (2), cause uneven wear problems, possibly allow the presser element (2) to loosen, and cause meshing problems between the gear (12) and the pinion (16), thereby destroying the intended function of the shaft (13) with the hole (8).

Because the modification of the shaft (13) of Tezuka as suggested by the Examiner would destroy its intended function, there is no motivation to replace the shaft (13) with a centrally located bolt as suggested by the Examiner.

2. Tezuka and Klingel are not properly combined.

Claims 1 and 15 call for, *inter alia*:

a ram head concentrically mounted to the ram and rotatable relative to the frame, the ram head having a centrally disposed bolt.

Appellants respectfully disagree with the Examiner's comments on page 2 of the Office action, "because the references are from a closely related art, it would have been obvious to one having ordinary skill in the art to replace Tezuka's plural rams (6) with one centrally mounted ram so as to reduce the forces on the frame as taught by Klingel and provide an enhanced structure". Appellants disagree with the Examiner because it cannot be seen why a person of ordinary skill in the art would even consider a combination of Tezuka and Klingel in an obvious manner. Support for appellants' position will be provided below.

It is noted that Tezuka discloses a high-pressure press (which based on the undersigned's experience is in the range upwards of 500 tons), which is used for compressing scrap metal. Accordingly, the high-pressure press of Tezuka is

subjected to extremely high forces and is therefore constructed, with regard to the dimensioning and cooperation of its components, to accommodate such high forces. A consequence of such construction is that a plurality of rams (6) are required and are provided next to one another so that the forces that are generated can be suitably distributed among the rams (6). This is contrary to the invention of the instant application, in which one centrally disposed ram is provided. On attempting to modify the device of Tezuka, the person of ordinary skill in the art would take into account, and indeed consider crucial, that the modification necessarily should be suitable for use in high-pressure press applications. Furthermore, any modification would, then, also have to be able to handle the attendant, very considerable forces without limitation.

This however, does not hold true for the device disclosed in Klingel because Klingel discloses a punch press, which is provided with a rotatably mounted lower ram portion (34) acting as a punch holder. The lower ram portion (34) is positioned rotatably in order to enable a simple change between different tools or to provide a spatial reorientation of individual tools. It is for this purpose that Klingel is provided with a drive unit, which effects a swiveling of the

lower ram portion about its positioning axis in response to predetermined control commands.

Based on the field of use of the Klingel reference it follows that the assembly known from Klingel with all of its components is constructed for use as a punching tool (which based on the undersigned's experience falls into a force range of well under a ton). Klingel is, therefore, concerned with entirely different structural forces than the high-pressure press according to Tezuka. Therefore, it cannot be seen why a person of ordinary skill in the art would consider a teaching from Klingel to be applicable to the high-pressure press according to Tezuka. Due to the requirements of the construction of the high-pressure press according to Tezuka, a person of ordinary skill in the art would refrain from using the teaching of Klingel.

A critical step in analyzing the patentability of claims pursuant to 35 U.S.C. § 103 is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. See In re Dembiczak, 175 F.3d 994, 999, 50 USPQ2d 1614,1617 (Fed. Cir. 1999). Close adherence to this methodology is especially important in cases where the very ease with which

the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." Id. (quoting W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)).

Most if not all inventions arise from a combination of old elements. See In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453,1457 (Fed. Cir. 1998). Thus, every element of a claimed invention may often be found in the prior art. See id. However, identification in the prior art of each individual part claimed is insufficient to defeat patentability of the whole claimed invention. See id. Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the appellant. See In re Dance, 160 F.3d 1339, 1343, 48 USPQ2d 163.5, 1637 (Fed. Cir. 1998); In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125,1127 (Fed. Cir. 1984).

The motivation, suggestion or teaching may come explicitly from statements in the prior art, the knowledge of one of ordinary skill in the art, or, in some cases the nature of

the problem to be solved. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. In addition, the teaching, motivation or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. See WMS Gaming, Inc. v. International Game Tech., 184 F.3d 1339, 1355, 51 USPQ2d 1385, 1397 (Fed. Cir. 1999). The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art. See In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981) (and cases cited therein). Whether the examiner relies on an express or an implicit showing, the examiner must provide particular findings related thereto. See Dembiczak, 175 F.3d at 999, 50 USPQ2d at 1617. Broad conclusory statements standing alone are not "evidence." Id. When an examiner relies on general knowledge to negate patentability, that knowledge must be articulated and placed on the record. See In re Lee, 277 F.3d 1338, 1342-45, 61 USPQ2d 1430, 1433-35 (Fed. Cir. 2002).

Upon evaluation of the examiner's comments, it is respectfully believed that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to the claims.

Appendix - Appealed Claims:

1. An apparatus for compressing objects, comprising:

a base plate;

a frame disposed on said base plate;

a ram displaceably guided on said frame; and

a ram head concentrically mounted to said ram and rotatable relative to said frame, said ram head having a centrally disposed bolt, said bolt having one end rotationally connected to said ram for rotationally mounting said ram head on said ram, and said bolt having another end with a threaded extension to be rotationally fixed to said ram head for exchanging said ram head.

2. The apparatus according to claim 1, wherein said bolt is prestressed.

3. The apparatus according to claim 2, wherein said bolt has a prestress greater than a force due to a weight of said ram head.

4. The apparatus according to claim 1, including a disk having studs disposed thereon, said disk and said studs supporting said one end of said bolt on said ram.
5. The apparatus according to claim 4, wherein said bolt is rotatable relative to said disk.
6. The apparatus according to claim 4, including another disk resting on said ram, said studs supported on said other disk.
7. The apparatus according to claim 4, wherein said studs for supporting said ram head are engaged in an encircling groove.
8. The apparatus according to claim 4, including at least one plate spring prestressing a respective one of said studs.
9. The apparatus according to claim 1, including an extension mutually centering said ram and said ram head.
10. The apparatus according to claim 1, wherein said ram is substantially vertically movable hydraulically with said ram head, with only said ram head being rotatable relative to said frame.

11. A high-pressure press for compressing objects, the press comprising:

a base plate;

a frame disposed on said base plate;

a ram displaceably guided on said frame; and

a ram head attached to said ram for rotation relative to said frame, said ram head having a centrally disposed bolt with one end rotationally connected to said ram for rotationally mounting said ram head on said ram.

12. The high-pressure press according to claim 11, wherein said bolt has another end with a threaded extension to be rotationally fixed to said ram head for exchanging said ram head.

13. The high-pressure press according to claim 11, wherein said ram is hydraulically actuated.

14. The high-pressure press according to claim 11, wherein the objects are containers containing bulky parts.

15. An apparatus for compressing objects, comprising:

a base plate;

a frame disposed on said base plate;

a ram having an axis and being displaceably guided on said frame along said axis;

a ram head coaxially attached to said ram and rotatable relative to said frame; and

a bolt disposed coaxially with said ram and said ram head, said bolt having one end connected to said ram and another end with a threaded extension to be rotationally fixed to said ram head for exchanging said ram head.

The combination of Tezuka and Klingel is not obvious. Furthermore, appellants point out that the assemblies according to Tezuka and Klingel each have an active adjustment of the orientation of the ram head via an assigned drive. Neither Tezuka nor Klingel teach an embodiment for preventing the introduction of forces which act in a peripheral direction via the ram head into the ram and thus into the frame. The person of ordinary skill in the art does not obtain any information from either Tezuka or Klingel regarding the criteria of preventing the introduction of forces which act in a peripheral direction as achieved in the present invention, as discussed in the amendment dated February 27, 2003. Accordingly, a person of skill in the art is not led to address such a concern based on the teaching of Tezuka and/or Klingel. Therefore, there is no reason for a combination of Tezuka and Klingel.

Because claims 1 and 11 are believed to be allowable, dependent claims 2-10 and 12-14 are believed to be allowable as well.

Based on the above-given arguments, the honorable Board is therefore respectfully urged to reverse the final rejection of the Primary Examiner.

Respectfully submitted,



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For Appellants

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